

Atrial Fibrillation

Atrial fibrillation (AF) is the most common cardiac arrhythmia. Normal regular rhythm ('sinus') is replaced by an irregular and often rapid heart beat (AF).

Atrial fibrillation may come and go (called *paroxysmal AF*) or may continue indefinitely (called *persistent AF*).



Figure 1: Atrial Fibrillation and Normal Sinus Rhythm

Cause

Atrial fibrillation is more common with age. It may occur without an apparent cause, but it is much more likely in the setting of: high blood pressure, heart disease, excess weight, sleep apnoea, and alcohol intake.

Consequences

There are three concerns:

1. **Stroke**
2. **Symptoms** - including palpitation, shortness of breath, and fatigue.
3. **Reduced Heart Function** - usually due to uncontrolled heart rate.

Prevention of Stroke

To prevent stroke, anticoagulant (todo: link to drugs) are used when there are one or more risk factors for stroke. Recognised risk factors for stroke include: heart failure, high blood pressure, age > 65 years, diabetes, vascular disease, and previous stroke or TIA.

Treating Symptoms and Preventing Heart Failure

Two strategies may be followed for the treatment of AF, commonly referred to as: **rate control**, or **rhythm control**.

- A rate control strategy accepts the presence of AF but simply attempts to reduce associated rapid high heart rates with medication. This method is often effective for reducing symptoms and preventing heart failure.
- A rhythm control strategy is employed when symptoms remain despite adequate rate control, or when the heart rate cannot be controlled. Medication, or an atrial fibrillation ablation, may be used.

Rhythm Control with Drugs

When AF causes troubling symptoms, an attempt can be made to keep the heart in normal rhythm. This is sometimes accomplished by medication alone, but often a DC cardioversion ('electrical shock') may be needed to get the heart back into rhythm.

Drugs avoid the complications of a procedure but may be associated with side-effects of their own. [TODO: flecainide, sotalol, amiodarone information sheets]

Rhythm Control with Catheter Ablation

Catheter ablation of AF is commonly performed to provide more effective relief of symptoms. It is usually employed when medication is ineffective, or intolerable. It is also indicated when the heart function is reduced.

Ablation is based on the observation that extra beats, called ectopic beats, originate in the pulmonary veins and are a frequent trigger for atrial fibrillation. Catheter ablation 'electrically isolates' the pulmonary veins from the left atrium. Extra beats are no longer able to escape from the pulmonary veins into the heart.

Catheter ablation works best when the heart is healthy, and the fibrillation comes and goes. It is less effective for durably controlling persistent AF.